

WHAT IS CLAIMED IS:

1. A system for searching a database of biological information, said system comprising:
  - 5            a server computer comprising a database of biological information and a first module for receiving a structured language query and transferring said query to a search engine;
  - 10            a database graph generation module associated with said search engine configured to generating a database graph; and
  - 15            a joins module configured to create joins between database tables based on said database graph, wherein said server computer runs a structured query language (SQL) search on said database based upon said joins.
2. The system of Claim 1, comprising a second module that receives the results of said SQL search and translates said search results into a structured language.
3. The system of Claim 2, wherein said structured query language is sent to a client computer.
4. The system of Claim 1, wherein said first module comprises a user interface that provides a list of searchable fields within said database.
5. The system of Claim 1, wherein said first module comprises a viewer module configured to present search results in a graphical format.
- 20            6. The system of Claim 1, wherein said structured language comprises the extensible markup language (XML), JavaScript, or the hypertext markup language (HTML).
7. A computer system for searching a database of biological information, comprising:
  - 25            a database of biological information comprising tables of biological data;
  - a search module configured to receive a structured language query and convert said structured language query into a search statement for querying said database of biological information; and
  - a joins module configured to determine how to join said tables of biological data in order to provide the results of said query.
- 30            8. The search engine of Claim 7, further comprising in XML send/receive Module for sending and receiving information to and from a Search Panel Module stored on a Client Computer.

9. The search engine of Claim 8, wherein said XML send/receive Module receives an XML structured query from a Client Computer, and delivers said XML structured query to a search tool module.

10. The search engine of Claim 7, wherein said Database Graph Generation Module creates a graph of a user-selected database.

5       11. The search engine of Claim 10, wherein said Create Joins Module utilizes said database graph to create joins between database tables.

10       12. The search engine of Claim 11, wherein said Create Joins Module calculates the shortest path between two database nodes thereby optimizing the retrieval of requested database data.

15       13. The search engine of Claim 7, further comprising a SQL statement generation module for translating said XML structured query into an SQL statement and sending said SQL statement to said Relational Database.

20       14. A method for querying a relational database, comprising the steps of:

15             sending a structured language database query to a search engine;  
           parsing the database and creating a database graph;  
           creating the correct joins corresponding to said query;  
           translating said structured database query into an SQL statement incorporating  
           said joins; and

20             sending said SQL statement to a Relational Database.

15       15. The method of Claim 14, including the further step of optimizing said joins by calculating the shortest path between the nodes specified in said query.

16. The method of Claim 15, including the further step of receiving requested results from said database search, translating said results into said structured data language and returning said results.

25       17. The method of Claim 16, including the further step of displaying said search results.

18. The method of Claim 18, wherein said structured language is the Extensible Markup Language.